REMARKS

Claims 1-22 are pending in the application. Claims 1-3, 5-10 and 12 are rejected. Claims 4 and 11 are objected to but would be allowable if placed into independent form. Claims 19-22 have been cancelled. Claims 1, 2, 4 and 10 are amended.

Election/Restrictions

The Examiner has acknowledged the election of claims 1-18 without traverse. These claims have been examined. Claims 19-22, which were withdrawn from consideration, have been cancelled.

Claim Objections

Claims 4 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 4 and 11 have been placed into independent form.

Claim Rejections - 35 U.S.C. § 102

Claims 1-3, 6, 7, 9, 10 and 12 are rejected under 37 U.S.C. 102(e) as being anticipated by Song et al. (U.S. Patent 6,197,615). This rejection is traversed for at least the following reasons.

Claims 1, 6, 7 and 9

As to claim 1, the claim has been amended to define the recess as being disposed on the top side of the lead portion and as being more than 33% of the width of the lead portion at the location of the recess. The dimension of the recess is clear from the illustrations in Figs. 2A, 2B

and 4A-4C, where recesses 204a, 204b, 404a-404c are much greater than 1/3 or even ½ of the width of the corresponding lead portion 201, 401. Claims 6, 7 and 9 depend from claim 1 and define additional aspects of the recess that are not found in the Song et al.

The patent to Song et al teaches the formation of small dimples on several sides of the lead frame (see Figs. 1B and 2) by impinging the surface with a granular material (see Fig. 5). The size of the dimples is miniscule, with several dimples being formed across the width of the lead at any given location. This reflects the use of a completely different technique with accompanying different results when attempting to secure an encapsulant to the frame.

Claims 2, 3, 10 and 12

The rejected claims require a channel formed through the lead portions. The Examiner asserts that there is such channel illustrated in Fig. 2 of Song et al. However, Applicant respectfully disagrees, as there is no channel taught in Song et al, since all of the dimples are formed by random impinging of particles on the surface of the lead frame. The cross section is not an accurate indication of the manner in which a cross section of a randomly impinged set of dimples would appear in the lead.

Moreover, the structure does not meet the definition as set forth in the present application. Specifically, the present application defines the structure of the channel at paragraph [28] as follows, with emphasis provided:

> At least one of the lead portions 201 has a recess 204A formed therein. Preferably, but not necessarily, a majority of the lead portions have a recess formed therein. The recess, which is formed in the upper face of a lead portion

201 by a mechanical or chemical process can be formed in a number of shapes. The **recess** can be a **channel formed through** the upper surface of each of the lead portions 201 from one side to the opposite side thereof, as shown by **recess** 204A in Figure 2A and **recess** 404A in Figure 4A. The cross-section of a **channel**-shaped **recess** can be a number of different shapes, as illustrated in Figures 3A-3C.

The requirement for a "channel formed through the upper surface" of the lead portions is expressly set forth in the claims. The requirement that the channel is "formed through" specifies that there is a transverse dimension and orientation to the channel in the upper surface. Nothing of this sort is found in the prior art. Moreover, as taught in the application, the channel-type recess provides a secure structure for the encapsulant. One skilled in the art would understand that it is more secure than that provided by miniscule dimples as taught by Song et al.

On the basis of the amendments to claims 1 and 2, all of the rejected claims now should be allowable.

Claim Rejection - 35 U.S.C. § 103

Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being upatentable over Song et al. (U.S. Patent 6,197,615).

In rejecting the claims as being obvious, the Examiner admits that the use of a square dimple or a through channel with a U-shaped, V-shaped or rectangular-shaped cross section is not taught in Song et al. Given the amendments to claims 1 and 2, these claims also should be patentable.

Applicant notes that the prior art mentioned at col. 1, lines 50-58 of Song et al do not teach the modification of Song et al to meet the claimed invention. Indeed, the teachings are incompatible, as Song et al finds deficiencies with these prior art references. Moreover, the impingement technique of Song et al could not be used to create structures with the limitations in the claims.

Moreover, the three references relate to the creation of holes 2 in a chip pad for flow of adhesive to permit secure mounting a chip to the pad, and not to the leads (4,942,452), providing guide holes 204 for resists and providing an oxidized surface portion (5,459,103) or providing a dimple 3 on a rear side of a lead frame to reduce stress. There is no teaching that either the lead or the tie bar should be provided with dimples of the size and shape claimed. None of these teachings suggests the modification of Song et al to achieve the present invention.

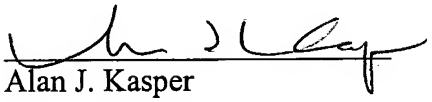
Allowable Subject Matter

Applicant is grateful that claims 13-18 are allowed. Claims 4 and 8 should be allowable due to their placement into independent form. Claims 1-4, 5-7 and 9-12 should be allowable for the reasons given.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Alan J. Kasper
Registration No. 25,426

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: June 30, 2005